VEGETATION RESPONSE TO PROTECTION FROM GOATS IN A MONTANE KOA PARKLAND ECOSYSTEM

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The feral goat (Capra hircus) is an exotic herbivore that has wrought havoc with island ecosystems, including the dry, rugged, and relatively inaccessible montane koa (Acacia koa) parkland on the islands of Maui and Hawaii. An exclosure was built in a koa parkland ecosystem on Maui to assess vegetation recovery from goat browsing damage. We are periodically determining percent ground cover, species composition, and woody plant abundance inside and outside the exclosure. Initially, plant cover inside was similar to that outside, but after three years, almost twice as much cover was measured inside as outside. Molassesgrass (Melinis minutiflora), an exotic species, which forms thick dense stands, spread rapidly inside the exclosure and showed no sign of relinquishing areas once it occupied them. The spread and subsequent retreat of molassesgrass outside suggested that goats may exert some control over the species. Established tree seedlings were found inside the exclosure after five years. Temporary non-established tree and shrub reproduction was found inside, but not outside, the exclosure. However, koa seedlings were found inside and outside, temporarily. Comparison of koa seedling heights indicated that those outside represented recent germinants, while those inside represented older individuals as well as recent germinants. The data indicate that the forest could partly recover if goats were eliminated, but exotics like molassesgrass may impede recovery.